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A Lack of Direction: Improving Marbled Murrelet Habitat Conservation under the Forest and Range Practices Act

Special Report

Forest Practices Board

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Introduction

Section 135 of the *Forest and Range Practices Act* (FRPA) allows the Chair of the Forest Practices Board to make a special report respecting a matter relating to the exercise of the Board's duties. The Chair released such a report in 2003, about the management and conservation of nesting habitats for BC's marbled murrelets (MAMU), a small seabird that nests in relatively large patches of old forest. That report, *Marbled Murrelet Habitat Management under the Forest and Range Practices Act*, noted that BC's MAMU population is threatened because of loss of nesting habitat due to forest practices. The report noted that the former MAMU habitat conservation regime implemented under the *Forest Practices Code of British Columbia Act* (the Code) had not worked well. Specifically, conservation of MAMU habitat had been limited and encumbered by a slow, ineffective assessment process. Meanwhile, forest practices in potential MAMU nesting habitats continued to be approved, rapidly eliminating options for MAMU habitat conservation. In 2003, the Board's greatest concern was to keep habitat conservation options open, as continued inaction would soon make it be impossible to meet MAMU conservation objectives in southern coastal BC, in particular. Therefore, the Chair made some general recommendations to promote more effective conservation of the most important MAMU nesting habitats. The key points were that the bureaucratic assessment process required significant streamlining and that licensees needed incentives to be actively involved.

More than a year has passed since the report was released, so the Chair decided to re-assess whether MAMU nesting habitat conservation had become more effective since the 2003 report. This report is the result of that re-assessment. The Chair found that there has been some streamlining of the assessment process. There are also some new incentives for licensees to be involved in MAMU habitat conservation. However, conservation is still limited and slow, hampered by high inventory costs and arbitrary policy barriers. Meantime, forest practices in potential MAMU nesting habitats continue to be approved, which contributes to rapidly dwindling options for MAMU habitat conservation in those southern coastal areas where conservation is most essential. There is a growing need for clear government direction on MAMU conservation.

The Forest Practices Regime for Conservation of MAMU Habitat

In 2002, the federal Canadian Wildlife Service published a document[i] that compiled the best and most current information available on MAMU in BC. In 2003, the Canadian Wildlife Service published a second document[ii] in which a broad-based Canadian Marbled Murrelet Recovery Team applied information from the 2002 report to develop a MAMU recovery strategy for purposes of the federal *Species at Risk Act*. That was followed by a risk assessment. This report will not differentiate among those reports, referring to all three collectively as the "Conservation Assessment".

The Conservation Assessment noted that, unlike most threatened species, MAMU are still relatively abundant; perhaps 65,000 live along the coast of BC and some 500,000 along coastal Alaska[iii]. Nevertheless, MAMU have been listed as threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) since 1990. "Threatened", for COSEWIC purposes, means that MAMU are likely to become endangered (face extinction) if limiting factors are not reversed. There are two ways to qualify for such designation – low population size and population decline. MAMU are listed as threatened due to population decline. All anecdotal evidence and most of the quantitative data indicate decline in population over the past century[iv]. In addition to the COSEWIC classification, MAMU are included on British Columbia's "red list" of species that are threatened, endangered or a candidate for such designation.

Threats to MAMU survival occur at sea, where starvation, predation, oil spills and drowning by entanglement in fishing nets kill adult MAMU. It is still impossible to assess the significance of such losses as compared to losses near shore during nesting[v]. However, continuing harvesting of nesting habitat and increasing exposure to predators due to habitat fragmentation through forest practices are considered to be major threats[vi]. The populations that nest along the southern mainland coast and south-eastern Vancouver Island are particularly depleted[vii].

MAMU typically nest on thick masses of moss on large-diameter branches of conifers. The nest sites are typically in structurally-complex forest because MAMU, being poor fliers, need canopy openings beside and below nest sites for access. Large, mossy branches in complex forest stands occur in old forests (more than 140 years old), especially those below 1,000 metres elevation[viii]. MAMU generally prefer to nest within 50 kilometres of the ocean[ix].

There is no direct reference to MAMU in FRPA, which came into force in January 2004. Under FRPA, government can pass regulations that prescribe objectives for various forest resources. For wildlife, the objective is to conserve sufficient habitat for the survival of species at risk, but to do so without unduly reducing the supply of timber. In May 2004, MAMU was declared to be a species at risk[x]. The effect is that, if a government official provides indicators of the habitat required for MAMU to a forest licensee, the licensee, in its operational plans, must specify strategies or results in respect to that objective.

Since 1999, an "Identified Wildlife Management Strategy" (IWMS) specified appropriate strategies for the Code; it was recently replaced with a 2004 version for FRPA[xi]. Generally, the goal of the IWMS is to minimize the effects of forest practices on MAMU and to maintain critical MAMU habitat. However, there is an important qualifier in the IWMS. Its provisions are not intended to address the broad issues of MAMU habitat supply or population viability. Wide-ranging, low density identified wildlife such as MAMU are primarily managed in accordance with management practices specified in strategic-level land use plans[xii] rather than FRPA and the IWMS.

The management practices included in the IWMS are designed only to reduce the impacts of forest practices on MAMU, subject to social and economic constraints. Essential habitats can be

conserved through the establishment of wildlife habitat areas (WHAs) as described in the IWMS, but the IWMS specifically anticipates that its provisions in themselves may be insufficient to conserve viable populations of MAMU throughout its natural range in BC.

The MAMU Habitat Conservation Toolbox

Given the Conservation Assessment, the enactment of FRPA and the revised IWMS, is this new forest practices regime likely to overcome the problems identified by the Board in the previous Code regime? In the 2003 report, the Chair had found MAMU habitat conservation under the Code to be very slow, cumbersome and ineffective. Despite those flaws, government has continued to approve forest practices in potential MAMU nesting habitats. The Chair recommended major process streamlining and incentives for licensee involvement in designating WHAs. While this has happened to some extent, the key question is: was it effective? One way to assess effectiveness is to look at the efficacy of FRPA in regulating forest practices to conserve MAMU habitat.

How does FRPA fit in the overall scheme to adequately manage and conserve MAMU nesting habitat? Is FRPA the main tool at government's disposal for MAMU conservation? Or are other tools, such as land use planning or old growth management strategies, better able to conserve MAMU, with FRPA left to simply fill in some site-specific gaps? To answer these questions, the Chair considered several government initiatives, which make up the tool kit intended to deal with MAMU habitat requirements in BC.

Tool #1: The Best Current Information on MAMU and MAMU Habitat Requirements

The Conservation Assessment is an important information source to guide MAMU habitat management and conservation. Given the broad membership from federal and provincial agencies, universities, environmental groups and forest industry on the Canadian Marbled Murrelet Recovery Team, the Conservation Assessment contains the best current information on the biology, populations, habitat associations and habitat/management needs of MAMU in BC.

The Conservation Assessment describes what is believed to be required to slow the rate of decline of MAMU in BC so that approximately 70 percent of the current population still remains thirty years from now. If that can be achieved, MAMU will no longer qualify for "threatened" designation by COSEWIC. The Assessment identifies six "conservation regions" for MAMU. For each region, it recommends a population ranging from 700 to 17,000 birds. These add up to a recommended provincial minimum population of some 55,000 birds.

Despite many uncertainties in population estimates, population nesting densities and the precise attributes of suitable habitat, the Conservation Assessment is a good basis for MAMU habitat conservation. However, the Conservation Assessment does not directly factor in the

social and economic costs of MAMU habitat conservation. Such balancing must be done through other means.

Tool #2: Clear Provincial or Regional Objectives

MAMU range over a large geographical area, nest at low densities, have widely but sparsely distributed nesting habitats and are sensitive to forest-level disturbance. To effectively conserve MAMU, their nesting requirements must be addressed over large areas, such as regions or watersheds. Over such areas, provincial or regional objectives are required to guide strategies that can be implemented to achieve results on the ground.

A. Provincial MAMU Objectives

To be effective, a suitable resource management objective must be clear and measurable. For example, a suitable objective would clearly state what portion of the 55,000 MAMU believed to be needed for population recovery is to be provided by various strategies, including those in the IWMS under FRPA. Another way to specify a clear and measurable objective would be on the basis of forest area. In a background report[xiii] for the Board, a consultant estimated that there are somewhat more than 9 million hectares of forest on BC's coast. Of that, only 2 million hectares are likely to have potential preferred habitat for MAMU. Similarly, the Conservation Assessment recommended that 0.6 to 2.4 million hectares of nesting habitat would be required to achieve more than 90 percent confidence of long-term coast-wide persistence of MAMU[xiv].

However, the recommendations of the Conservation Assessment have not been accepted[xv] as government policy. Presumably, that is because the Conservation Assessment does not balance the many environmental, social and economic factors pertaining to MAMU conservation; that is a task for elected government officials. A provincial MAMU management objective would reflect such balancing, but there is no provincial objective. An absence of a clear and measurable provincial objective for MAMU reduces the effectiveness of the various strategies that could be initiated to implement MAMU habitat conservation, including those under FRPA such as the IWMS. Without a provincial objective, there is no way to assess how much MAMU habitat conservation is intended to be implemented through FRPA or other regulatory regimes.

B. Objectives from Land Use Planning

Strategic land use plans apply to large areas, so they could set objectives to guide MAMU habitat conservation, either consistently with provincial objectives or in isolation. Three of the Conservation Assessment's MAMU "conservation regions" – the Central Mainland Coast, the Northern Mainland Coast and the Queen Charlotte Islands – fall under current strategic land use planning exercises. Land use decisions can be made in strategic planning to set habitat aside for adequate conservation of MAMU, reducing the need for restrictions of forest practices in MAMU nesting habitat under other regulatory regimes such as FRPA.
For the northern mainland coast, relatively large areas of old forests remain that are suitable for MAMU nesting. Much of that may not be economically viable to harvest at present, and

recommendations from the North Coast land and resource management planning process call for the retention of 70 percent of the old forest across each subregion in the plan area. Therefore, if government endorses those recommendations, it seems likely that murrelet habitat conservation will be effective in that region. The Board has had no occasion to be involved in MAMU habitat conservation on the northern coast but, given the ample supply of old forest, there may be no need to rely on forest practices regulation such as FRPA for MAMU conservation in most of that area. The situation is expected to be similar, although somewhat less flexible, in much of the central coast.

The Board has had occasion to examine forest practices elsewhere, where depressed populations of MAMU are found. For the Queen Charlottes, the Board found that MAMU habitat conservation in at least one area (the Eden Landscape Unit[xvi]) was concluded with only two wildlife habitat areas, well short of what seems to be required. It remains to be seen whether strategic planning will provide any additional leeway, but the Board remains concerned about the adequacy of MAMU habitat conservation on the Queen Charlotte Islands/Haida Gwaii.

The Board has, through complaint investigations, audits and appeals, also found serious barriers to adequate MAMU habitat conservation in the southern mainland coast and in both east and southwestern Vancouver Island. (For convenience, this report will refer to those areas plus the Queen Charlotte Islands, collectively, as the "south coast".) Strategic planning has limited utility as a tool for MAMU habitat conservation in any of the south coast, except perhaps the Queen Charlotte Islands. Land use planning has basically been completed, and land use options are constrained by intense competition among diverse users. Nevertheless, it is in the south coast that effective tools are most needed for MAMU habitat conservation. The Board anticipates that clear MAMU conservation objectives are not likely to emerge from strategic planning on the south coast.

Tool #3: Effective Strategies to Achieve Objectives

Despite the absence of a provincial MAMU habitat conservation objective, and even where strategic planning has failed to set regional MAMU objectives, there are several government strategies that can deal with such conservation. The IWMS, as its name indicates, proposes strategies to conserve identified wildlife, including MAMU. Although the IWMS focuses primarily on a strategy of establishing wildlife habitat areas (WHAs), it also refers to, and is intended to work in concert with, other government strategies such as using protected areas (PAs) such as parks and using old growth management areas (OGMAs).

A. The Protected Areas Strategy

A number of protected areas along coastal BC are important for conservation of MAMU, including several parks (Carmanah-Walbran, Pacific Rim, and Strathcona) and other protected areas such as Clayoquot Sound on Vancouver Island and the Gwaii Haanas reserve on the Queen Charlotte Islands. Nevertheless, after a protracted effort to identify protected areas in the late 1990's, it is unlikely that much more habitat will be designated as protected areas along

the southern BC coast in the future. There is potential for significant additional protected areas in the mid-coast and northern coast, where strategic planning is under way. Nevertheless, there are still only an estimated 0.4 million hectares in coastal protected areas that are likely to consist of MAMU potential preferred habitat[xvii]. Thus, current coastal protected areas are unlikely to protect more than 20 percent of the 2 million hectares that may be required to meet the Conservation Assessment goal. This tool has been effective in the past but, in the Board's view, it has now been fully utilized for the south coast areas where MAMU most need habitat conservation. That means that the protected areas strategy is no longer an effective tool for additional conservation of MAMU habitat on the south coast of BC.

B. Old Growth Management Areas Strategy

OGMAs are intended to ensure that ecosystems associated with old forests are retained. There is no reference to OGMAs in FRPA, as there was in the Code, but conservation of some stands with old growth attributes is continuing under the *Land Act* and landscape unit planning. OGMAs are considered by agencies to be useful to augment protected areas and the IWMS as mechanisms to conserve MAMU nesting habitat[xviii]. Indeed, current policy explicitly advises that OGMAs should overlap MAMU habitat areas.

Nevertheless, the policies directing placement of OGMAs limit OGMA value for MAMU in several ways. First, policy direction resulted in some 45 percent of landscape units being assigned a "lower biodiversity option". In those units, as much as 65 percent of the OGMAs can be currently-immature forest. Such forest will take many decades to develop old growth characteristics that MAMU require. Second, OGMAs are designated for many other resource values that do not require the characteristics of MAMU habitat, such as protecting nesting habitat for bald eagles or maintaining forest patch size or edge ratios. Third, policy directs the placement of OGMAs in uncontroversial locations, such as land that does not contribute to timber production, or areas that are already protected for other reasons, thus avoiding conflict with licensee needs. Fourth, some resource activities such as mineral exploration and development and road access are permitted in OGMAs, but those activities can fracture larger old forest tracts into smaller, drier units with less usable habitat for MAMU and greater risk of predation on nests. Fifth, there is no long-term stability with OGMAs. They do not necessarily remain in the same location once designated, because they can be replaced or substituted by other OGMAs over time.

The Board considers that the diverse rationales for OGMA placement, the inclusion of immature forests, and the fact that OGMAs are not long-term features of the landscape all combine to severely restrict the utility of the OGMA strategy tool to conserve MAMU habitat in the south coast.

C. Identified Wildlife Management Strategy

The strategy with which the Board is most familiar is the IWMS, because it is a strategy developed for the Code and continued under FRPA. A provincial strategy such as the IWMS could enunciate a broad objective of what is considered to be required to adequately conserve

MAMU in BC. However, the IWMS provides little that would serve as a clear, achievable objective. The IWMS is intended to reduce the impacts of forest practices on MAMU subject to unspecified social and economic constraints. That is a weak objective which cannot be easily measured.

The primary FRPA strategy for management of identified wildlife such as MAMU is through the establishment of WHAs, supplemented by objectives for those WHAs and implementation of general wildlife measures within them. There are, however, two major limitations to WHAs as an effective tool. First, after five years, WHAs still only account for 0.007 million hectares, a virtually insignificant portion of the approximately two million hectares that are estimated to be needed to sustain MAMU recovery. Second, the IWMS requires that MAMU WHAs continue to be subject to the same policy constraints that were so limiting in the past. MAMU WHAs must overlap already-constrained forest such as OGMAs, ungulate winter ranges and visual resource management areas wherever possible. WHAs are to be established in a "non-contributing land base"[xix] wherever possible.

The effectiveness of the WHA strategy is further compromised by the consequences of those policy constraints. First, it may seem that WHAs for MAMU could be located anywhere in the non-contributing land base. However, that is misleading. "Non-contributing" is not necessarily economically inoperable forest. Thus, topographically-isolated patches of good quality timber will normally be outside the timber harvesting land base. However, they maybe harvestable economically by helicopter, particularly as only the best trees need to be taken from the non-contributing land base. That is occurring, for example, in the Eden landscape unit on Haida Gwaii. The effect is that the largest trees on isolated side-hill benches, potentially the best MAMU habitat in the supposedly inoperable forest, are the very trees that tend to be harvested.

A larger problem comes from an arbitrary one percent policy cap. WHAs in the timber harvesting land base are not, in the aggregate, allowed to constrain more than one percent of the timber supply unless a land use plan requires otherwise. When this policy was implemented in early 1999, government recognized that it might require adjustment after a trial period, stating:

> "The one percent (timber supply) impact will be maintained at the district level over the next two years, at which time analysis will be done to determine whether the strategy is having a positive effect on Identified Wildlife species. If it appears that a species requires more efforts to maintain ... its populations, then adjustments will have to be made such as increasing or re-apportioning the impact.... Government recognizes the need to avoid cost increases to the forest industry as a whole." (Emphasis added).

However, the analysis of the effect of the cap on identified wildlife species never happened. In addition, the limit is not one percent of the total timber supply. Instead, it is one percent of the "short-term" timber supply, which considers only the area of mature (over 80 years of age) timber. The effect of that interpretation is very significant, especially on the south coast where most timber is immature second or third growth. In the South Island Forest District on Vancouver Island, for example, there are about 300,000 hectares of forest, of all ages, in the

timber harvesting land base. One percent of that would be 3,000 hectares available for WHAs. However, less than one third of that forest is over 80 years of age. As a result, the policy limit is already reached at less than 1,000 hectares. Paradoxically, this effect is most pronounced in parts of BC like the south coast that have, in the past, been heavily harvested. It is precisely those parts of the coast that have the greatest need for MAMU habitat conservation.

The 2004 IWMS indicates that the policy may yet be reviewed. The one percent timber supply cap will continue to be applied, but only "until there is a new government decision on the management of marbled murrelet". In addition, it encourages licensees to propose alternative strategies for managing marbled murrelet habitat. Those alternatives could, potentially, diverge from current policy direction. On the other hand, recent developments under FRPA are tending to entrench the one percent cap. For wildlife, the general objective, under section 7 of the *Forest Planning and Practices Regulation*, is to conserve sufficient habitat for the survival of MAMU, but to do so without unduly reducing the supply of timber. Government is in the process of specifying the amount and distribution of areas, and the attributes of such areas, in "section 7 notices". Such notices are to be produced for each forest district. The effect of the notice is that it requires most licensees in each district to include results or strategies in their operational plans that incorporate the specified habitat attributes and areas. The entrenchment of the policy cap occurs when notices require no more than one percent of the net mature timber harvesting land base to be designated as WHAs. That occurred in the recent notice for species at risk in the Campbell River Forest District[xv]. It specified that only 1,431 hectares of suitable MAMU nesting habitat need be conserved in the net mature timber harvesting land base. While the area of 1,431 hectares sounds precise and well thought out, the figure is simply the allocation for MAMU from an area that is equivalent to one percent of the timber harvesting land base.

In any event, some WHAs have been designated for MAMU in the timber harvesting land base. However, other species besides MAMU such as goshawks also require relatively large WHAs. In combination, they have already rapidly used up the one percent policy allowance for timber impact in much of the south coast. As a result, the policy barrier has been reached in all three forest districts on Vancouver Island[xvi]. Based on available information, it is reasonable to assume that the situation is similar in the Queen Charlotte Islands and Chilliwack Forest District and in the Squamish and Sunshine Coast Forest Districts as well. Now, in the form of section 7 notices, what was formerly policy direction is attaining the force of law.

As for the future, unless the one percent policy cap is changed, the only room for additional WHAs for MAMU in such heavily harvested districts would seem to depend on OGMAs being designated over established WHAs. If OGMAs are designated over existing WHAs, those WHAs are no longer considered to be in the timber harvesting land base. That means they no longer are counted as consuming part of the one percent timber supply cap, thus "freeing up" some timber for, potentially, additional WHAs. However, as described previously, the utility of the OGMA strategy for MAMU is very limited; they will rarely overlap WHAs because they are set up for different purposes.

D. Licensee Strategies

Under the Code, the field work that led to WHA proposals was generally carried out by the Ministry of Water, Land and Air Protection. With staff and budget reductions and a government shift to partnerships with businesses, MWLAP's capacity to carry out such fieldwork has been curtailed. On the other hand, a number of licensees[vii] on Vancouver Island and the southern mainland coast are now doing considerable work in collaboration with MWLAP biologists and university researchers to identify the best stands for MAMU nesting - those stands that have mossy nest platforms and are within valleys that are actually utilized by MAMU for nesting. For example, Terminal Forest Products Ltd. has been actively working to identify such stands in two landscape units and a number of other areas in the Sunshine Coast Forest District. The work consists of six steps:

1. Use continually improving habitat-related criteria to locate possible MAMU nesting habitat on forest cover maps.
2. Use air photo interpretation to refine those areas by confirming attributes of possible MAMU nesting habitat and by identifying areas within those possible habitats that have the "coarse-textured" appearance that indicates diverse stand structure that tends to include mossy platforms on large branches.
3. Inspect such areas closely, either by helicopter or from the ground, to identify stands that actually have the necessary moss platforms.
4. Do radar, audio and visual surveys at the mouths of valleys that have stands with such moss platforms, to determine whether MAMU are flying in and out of them.
5. Within MAMU-utilized valleys, propose platform-rich stands, with some surrounding buffer, as draft WHAs, OGMAs or ungulate winter ranges, attempting to protect a range of forest resource values for each proposed area.
6. While awaiting designation of WHAs or similar areas after step 5, voluntarily defer forest practices.

It is very useful for licensees to take such a proactive approach to MAMU conservation. It also provides some benefits for participating licensees. First, although the field work described above is quite an expensive process, much of the cost has been offset by government funding to support sustainable forest management practices, such as the Forest Investment Account. Such recovery of significant operational costs is one incentive for licensee involvement. Another incentive is increased certainty in planned operations. Licensees who propose MAMU habitat conservation areas are more likely to be able to locate such areas where they do the most for conservation—high-quality habitat that is actually used by MAMU. In addition, licensees can propose WHAs where they will be least disruptive to the licensee's forest practices. For example, a licensee can focus on habitat located on the sides and ends of drainages rather than in the transportation corridor of the main valley floor, or overlapping forest stands that protect other non-timber resource values.

The inventory work by south coast licensees is operating in the absence of precise government objectives. The only guidance that is in place is the section 7 notices, with their entrenched one percent limit on WHAs in suitable MAMU nesting habitat in the net mature timber harvesting land base. As mentioned previously, the origin of that cap is arbitrary and it has never been reviewed for effectiveness. Without assessment of effectiveness, the one percent limit is a poor substitute for a more reasoned MAMU habitat conservation objective. On balance, the licensee strategies have the potential to be quite effective for MAMU habitat conservation, but only if the licensees' proposals are not made subject to the serious limitations and policy barriers that continue to encumber government efforts to conserve such habitats.

Conclusions

FRPA's MAMU conservation planning regime has improved slightly but is still not working well. Conservation of MAMU habitat under FRPA on the southern BC coast has been streamlined somewhat, but is still limited and very slow. The process continues to be hampered by undirected inventory collection and by arbitrary policy barriers that are now becoming legally entrenched. While the MAMU conservation process continues to be encumbered, forest practices in potential MAMU nesting habitats are still being approved. Thus, the rapid elimination of future options for MAMU habitat conservation continues in those south coastal areas where conservation is most essential. Although, in some cases, licensees are voluntarily deferring forest practices in candidate MAMU WHAs, there remains a pressing need for quick government action on MAMU nesting habitat conservation on the south coast.

Some licensees, working in partnership with MWLAP and university biologists, are doing considerable work in the way of surveys, proposing candidate wildlife habitat areas to government that consist of MAMU-utilized habitat. Such areas can be laid out to minimize detrimental impacts on licensees' forestry operations. However, the Ministry of Water, Land and Air Protection, through section 7 notices under FRPA, is entrenching an arbitrary one percent timber supply barrier that, in the Board's view, prevents conservation of MAMU habitat in most operable forest on the south coast. The effect is to deflect habitat conservation to the less suitable habitats in the non-contributing land base. The result is that, notwithstanding a significant amount of field work by agencies and, increasingly, forest companies, MAMU populations are likely to be maintained under FRPA far below the level recommended by the MAMU recovery team for the south coast and, probably, the Queen Charlotte Islands/Haida Gwaii unless the current policy restrictions are relaxed.

That is not necessarily unsound forest resource management. FRPA cannot be expected to achieve all of the habitat conservation required for MAMU in isolation from broader government direction. FRPA objectives, including those for wildlife such as MAMU, are specifically restricted to not unduly constrain the supply of timber from BC's forests. It is therefore implicit that MAMU habitat conservation under FRPA must balance socio-economic considerations. However, government should be clear on how much FRPA is to accomplish in terms of MAMU conservation. Clear and measurable government objectives are required to guide licensee strategies and planned results, but there is no such objective for MAMU.

Without that, it is impossible to independently assess or confirm whether those strategies will achieve the desired results.

Recommendations

1. Government should set a clear, measurable objective for MAMU habitat conservation along the south coast of BC, including the Queen Charlotte Islands/Haida Gwaii.
2. Government should analyze the one percent policy cap, and section 7 notices under FRPA, to determine whether they are having a negative effect on Identified Wildlife species such as MAMU on the south coast. If so, adjustments should be made such as increasing or re-apportioning the impact.
3. Government should support expansion of operational funding of the collaboration between the licensees, MWLAP and universities to identify actual MAMU-utilized nesting habitat and propose habitat conservation measures that balance the need to conserve the best quality habitat with the need to avoid unnecessary disruptions on timber supply and on their planned forest practices.

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[i] Burger, A. E., 2002. *Conservation assessment of Marbled Murrelets in British Columbia: A review of the biology, populations, habitat associations, and conservation.* Canadian Wildlife Service Technical Series Report No. 387 **[Biological Review].**

[ii] Canadian Marbled Murrelet Recovery Team, 2003. *Marbled Murrelet Conservation Assessment 2002, Part B – Marbled Murrelet Recovery Team advisory document on conservation and management.* Canadian Wildlife Service, Delta, BC. **[Advisory Document].**

[iii] Biological Review p. 30, 35.

[iv] Biological Review p. 34.

[v] Biological Review p. 132.

[vi] Advisory Document p. 5.

[vii] BC Environment, 1999, *Managing Identified Wildlife: Procedures and Measures, Volume 1* p. 71. The same strong point was made in the first MAMU recovery plan - see Kaiser et al., 1994. National Recovery Plan for the Marbled Murrelet. Report No. 8, Recovery of Nationally Endangered Wildlife Committee, Canadian Wildlife Service, Ottawa.

[viii] Biological Review p. 43, 55, 115.

[ix] Advisory Document p. 17.

[x] On May 3, 2004 the Minister of Water Land and Air Protection established a category of species at risk by order made under section 11(1) of the *Government Actions Regulation*. This category of species at risk represents those species that may be affected by forest or range management on Crown land and are listed by COSEWIC.

[xi] Two companion documents comprise the IWMS Version 2004. *Procedures for Managing Identified Wildlife* describes the procedures for establishing, modifying and rescinding a wildlife habitat area, and for implementing strategic- and landscape-level planning recommendations. *Accounts and Measures for Managing Identified Wildlife* summarizes the status, life history, distribution and habitats of Identified Wildlife, and outlines specific guidelines for management of their habitats.

[xii] Strategic-level plans cover large areas, such as regions or large watersheds.

[xiii] Dechesne-Mansiere, S.B.C., 2004. *Marbled Murrelet Habitat Management in British Columbia – Background Analysis for the Chair of the Forest Practices Board.* 17 pages. **[Background Report.]** Available at http://www.fpb.gov.bc.ca/SPECIAL/reports/SR21/MAMUBackgroundReport_AugustFinalVersion.pdf.

[xiv] Steventon, J.D., G.D. Sutherland, and P. Arcese. 2003. *Policy implications of an assessment of longterm risks to Marbled Murrelet populations in British Columbia.* Res. Br., B.C. Min. For., Victoria, B.C. Exten. Note 66. "Long term persistence", for this analysis, was persistence of MAMU over more than 100 years.

[xv] Ministry of Water, Land and Air Protection, 2004, *Accounts and Measures for Managing Identified Wildlife – Accounts V. 2004*, p. 9.

[xvi] See Forest Appeals Commission decision 2000-FOR-009(d), the "Husby Group appeal", for a detailed analysis of the situation and the concerns.

[xvii] Background Report, page 7.

[xviii] Background Report, page 9.

[xix] For timber supply estimation, the forest is generally divided into a "timber harvesting land base" and a "non-contributing land base". The former includes forest where timber harvesting is expected to be feasible – operable forest. The non-contributing land base is forest that is generally expected to be not feasible for timber harvesting – inoperable forest. However, these are only concepts. Technological improvements and changing market conditions can make timber in the non-contributing land base operable, or timber in the timber harvesting land base inoperable.

[xx] Deputy Minister of Water, Land and Air Protection, 2004. *Notice – Indicators of the amount, distribution and attributes of wildlife habitat required for the survival of species at risk in the Campbell River Forest District*, approved July 27 2004, 5 pages.

[xxi] Ministry of Water, Land and Air Protection, 2004. Letter of May 5 to J. Thompson from R.H. Heath.

[xxii] The Board is aware of MAMU work by Canadian Forest Products Limited, International Forest Products Limited, Terminal Forest Products Ltd. and Western Forest Products Limited. There may well be other licensees that have become active in this area in coastal BC as well.

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